

FIGURE 1

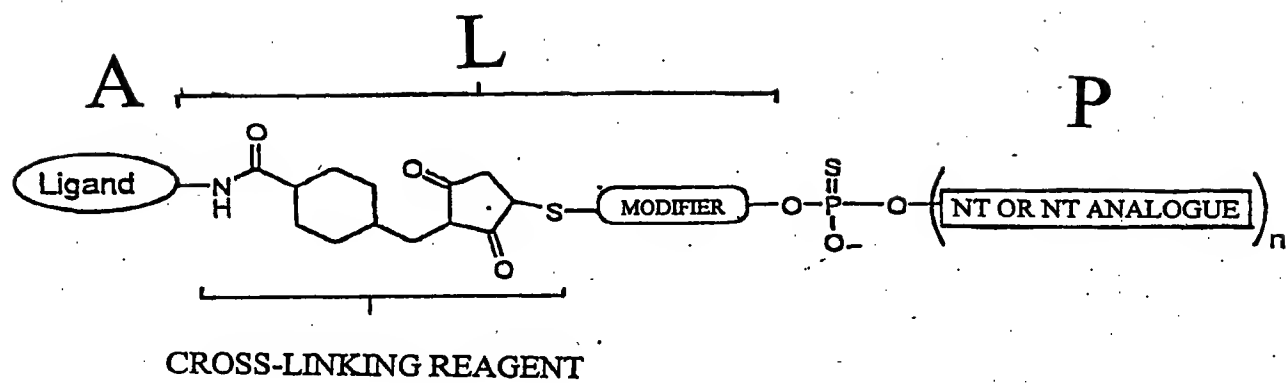


FIGURE 2

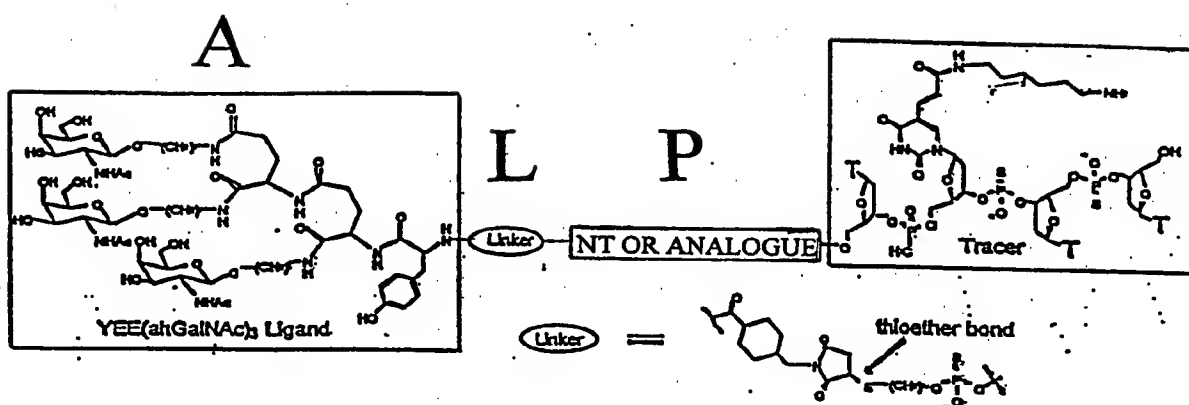
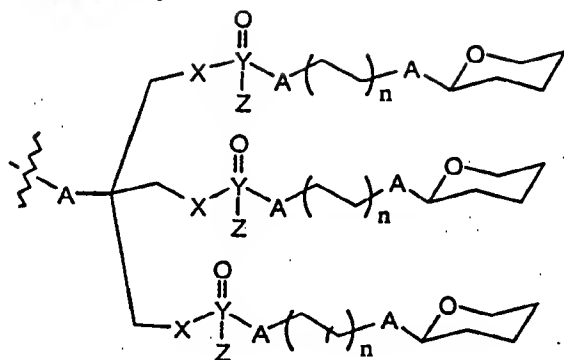


FIGURE 3

Tri-antennary



X = NH, O, S

Y = P or S

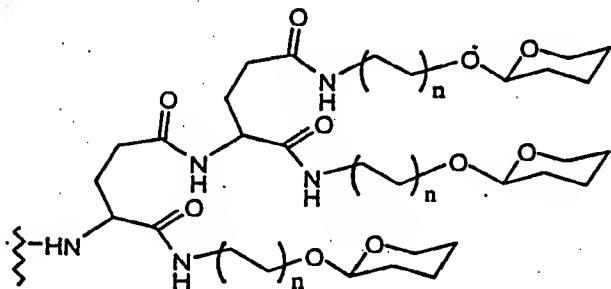
Z = NH-alkyl, NH<sub>2</sub>, O<sup>-</sup>, S<sup>-</sup>

A = NH, CH<sub>2</sub>, O, S

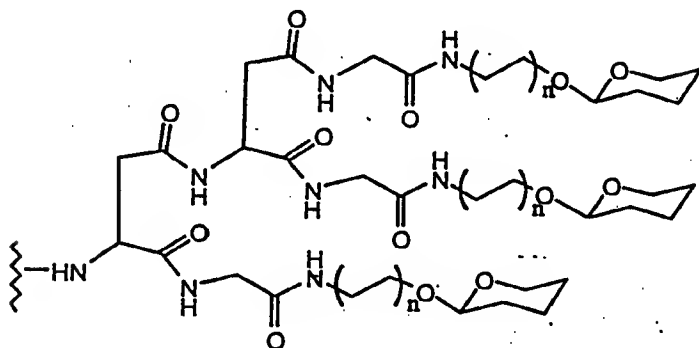
n = 2 to 17 2-carbon units

Carbohydrate =

tris((heteroatom)methyl)-[heteroatom]methane



diglutamyl



diasparatyl

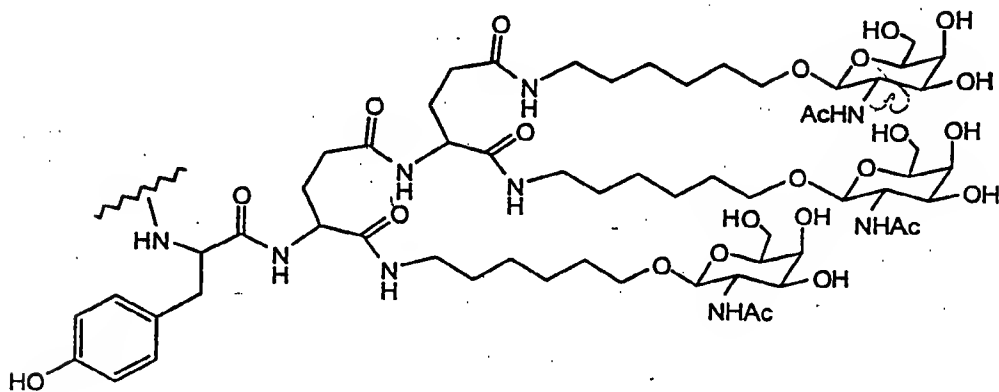
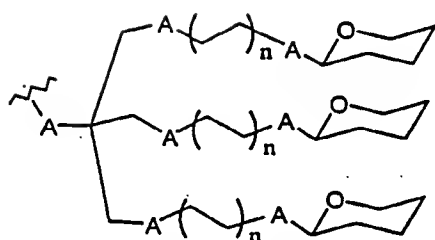


FIGURE 3 (CONTINUED)



tris((heteroatom)methyl)-[heteroatom]methane  
examples

tris(hydroxymethyl)aminomethane-based

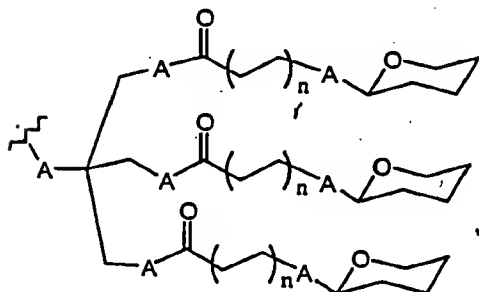
[A= O]

tris(aminomethyl)aminomethane-based

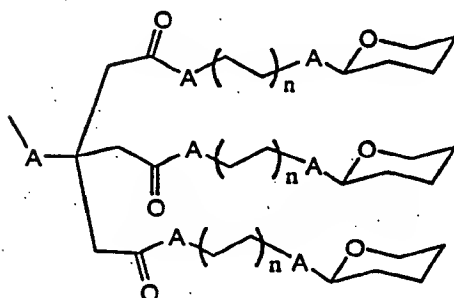
[A= NH]

tris(thiomethyl)aminomethane-based

[A= S]

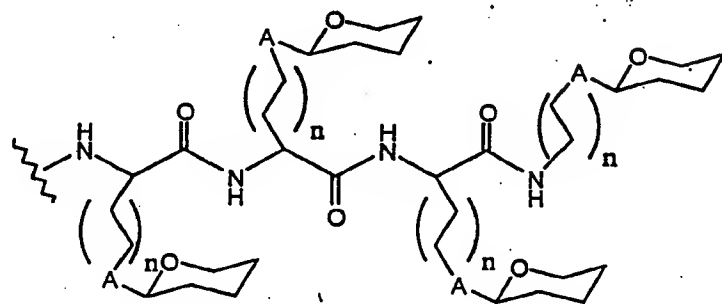


tris(aminomethyl)-[heteroatom]methane



tris(acetoxy)-[heteroatom]methane

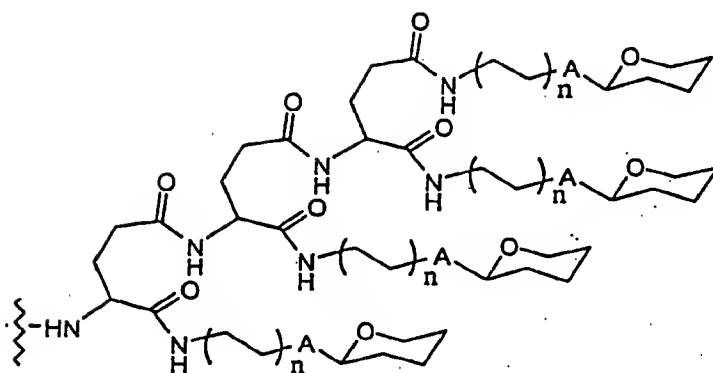
Tetra-antennary



oligo(lysine)

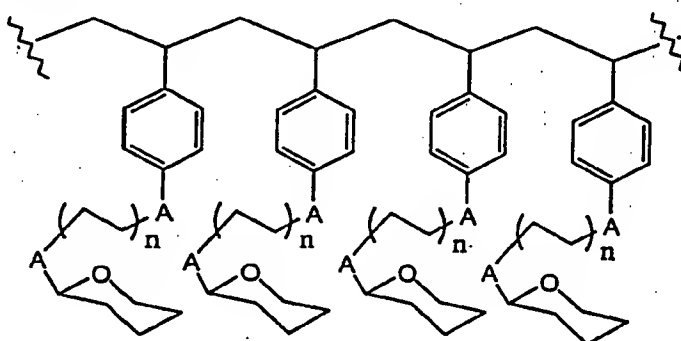
FOOT 2548660

FIGURE 3 (CONTINUED)

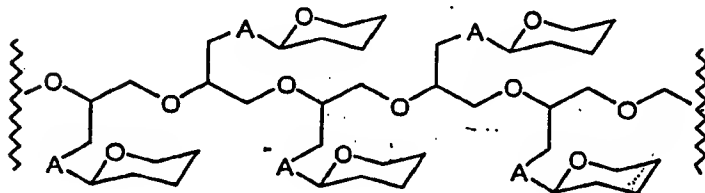


oligopeptide-based  
(i.e. triglutamyl)

Multi-antennary



substituted  
polystyrene-based



substituted  
poly(ethyleneglycol)

FIGURE 4

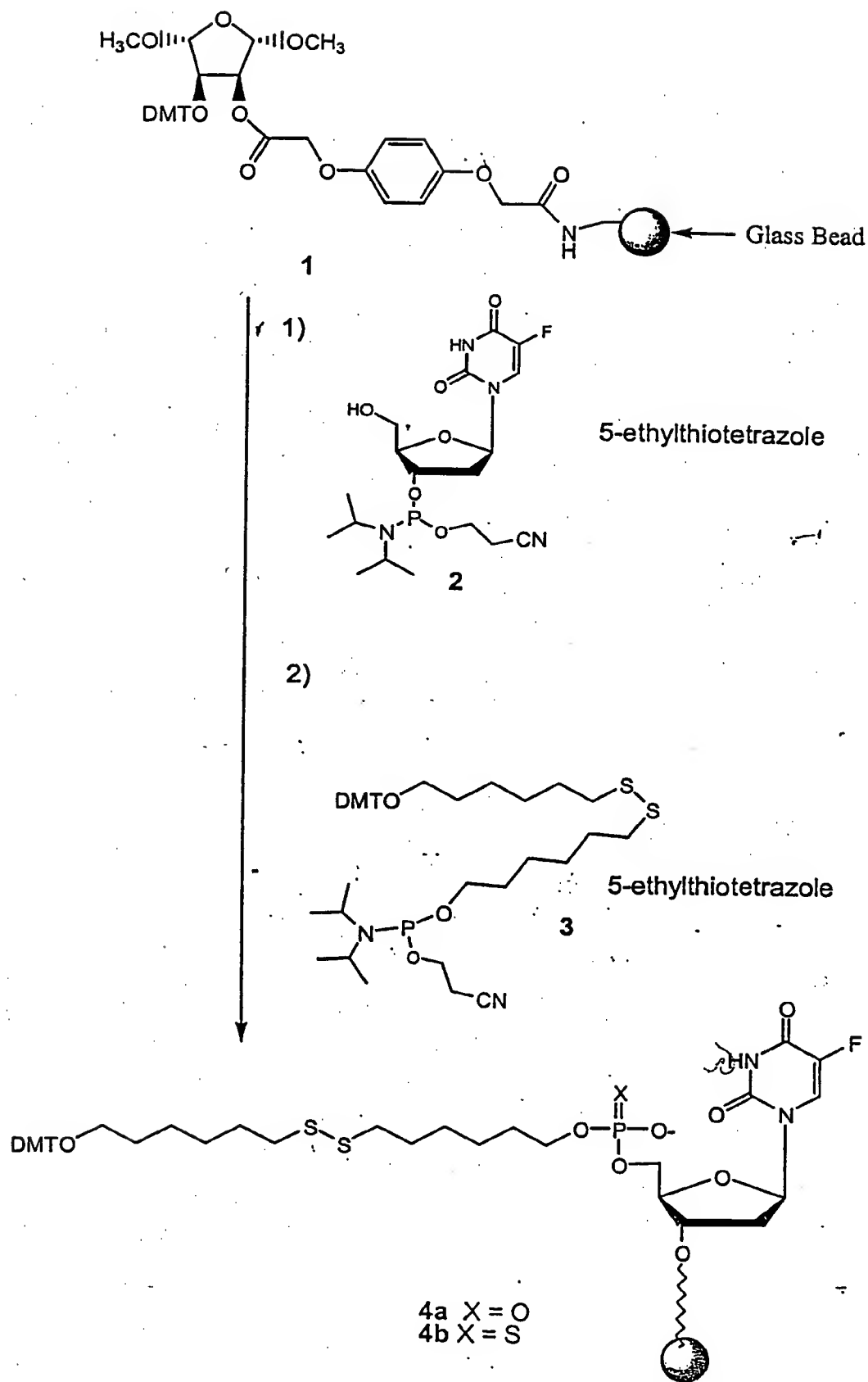
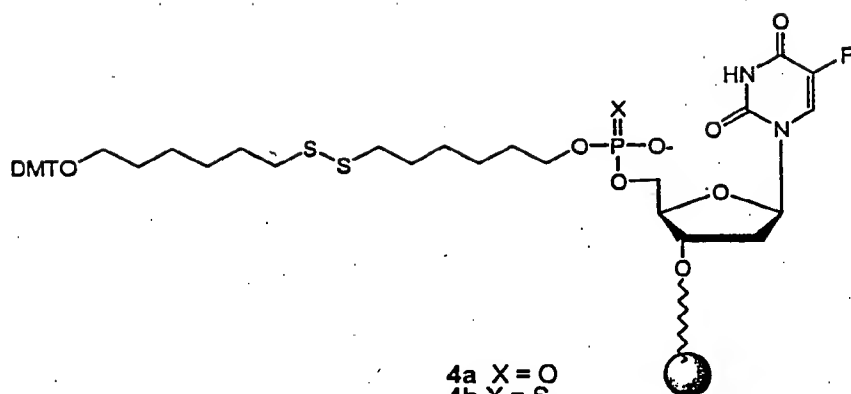
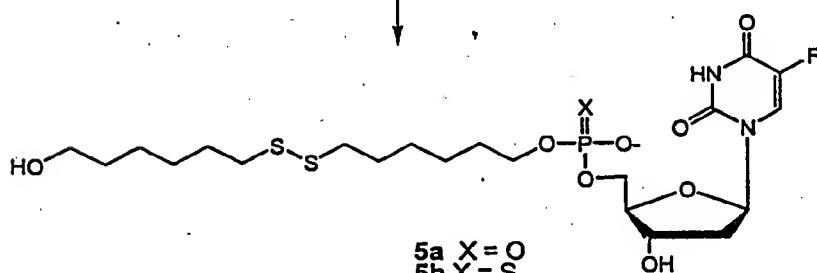


FIGURE 5



C18 SepPak™  
1% CF<sub>3</sub>COOH



DTT

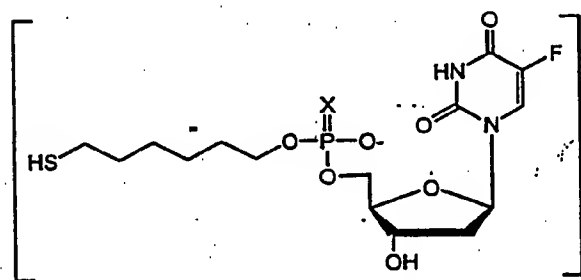






FIGURE 7

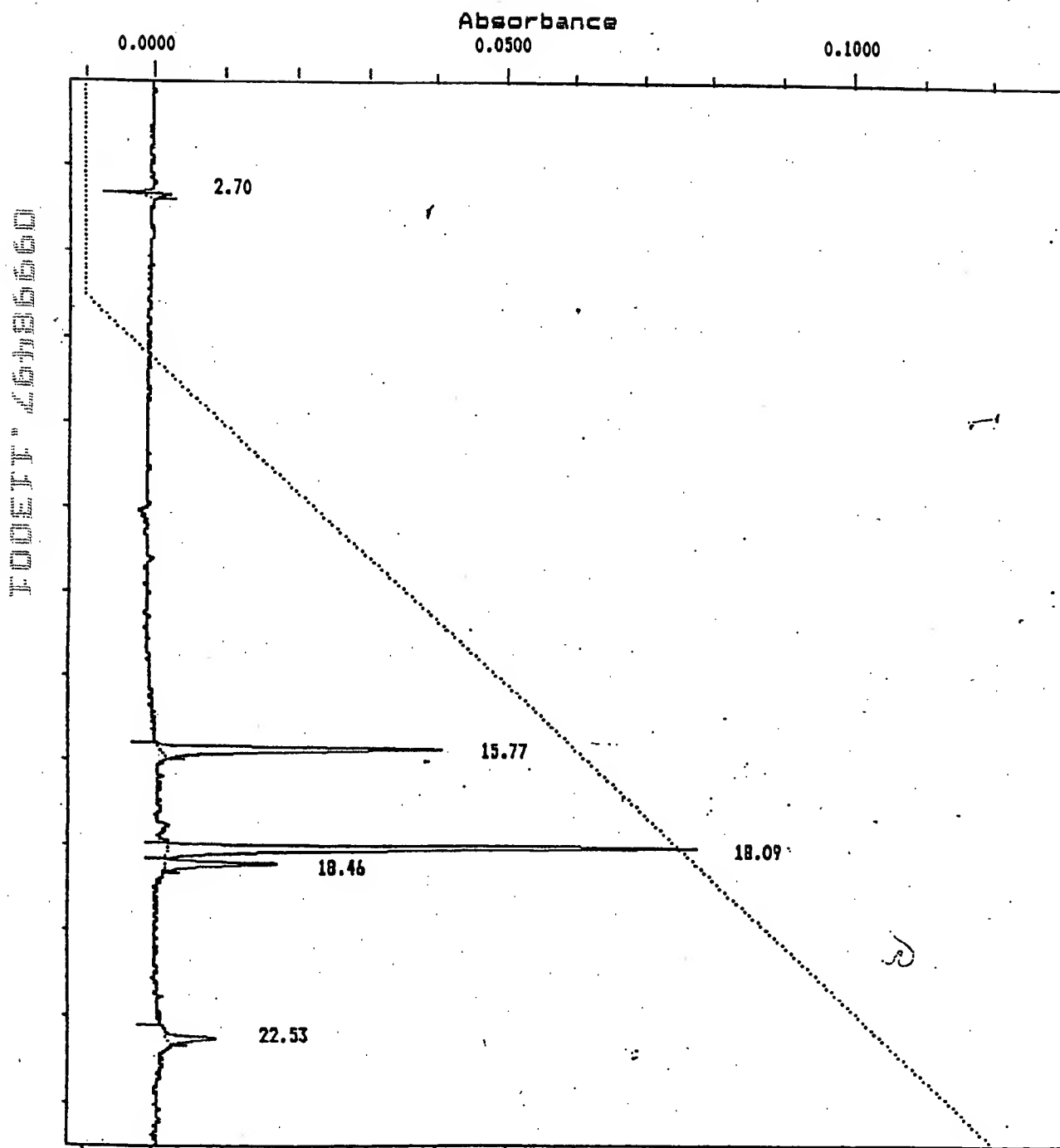


FIGURE 8

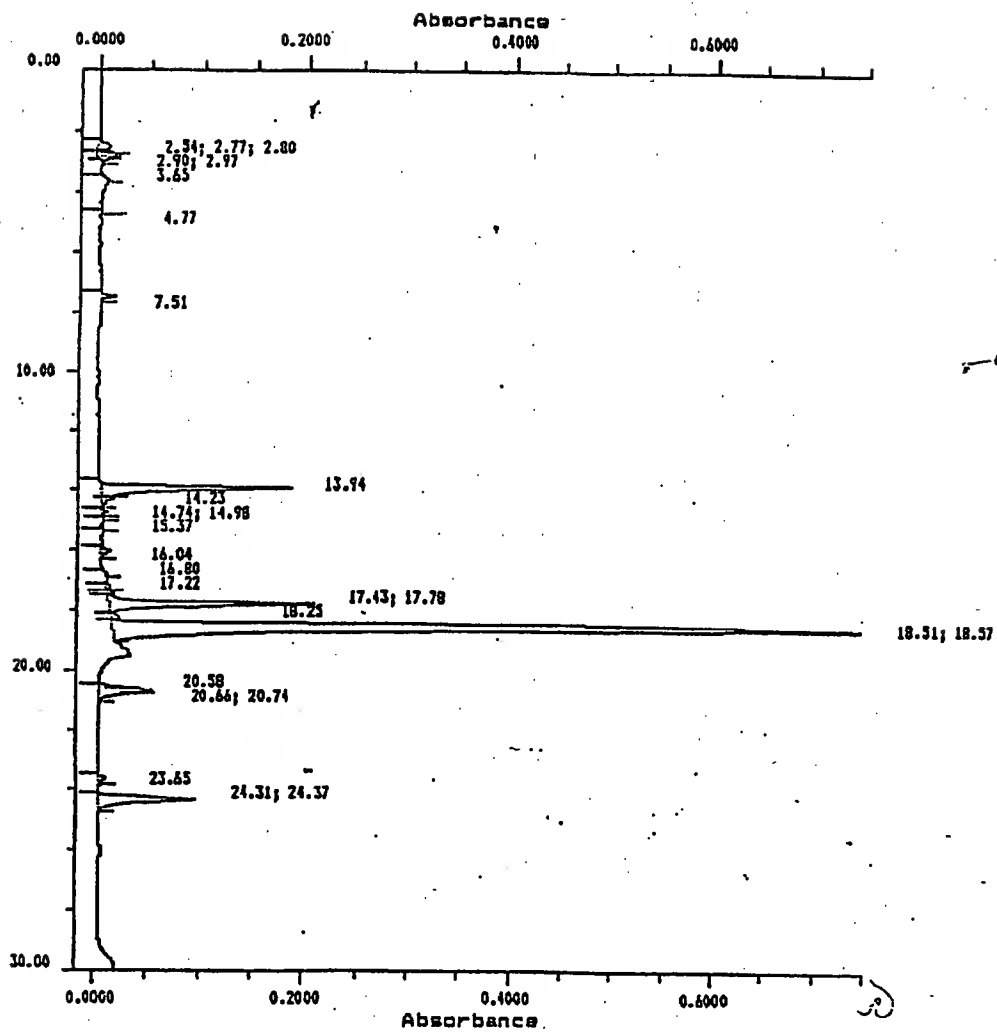
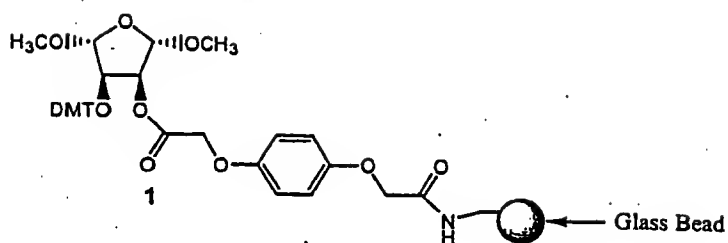
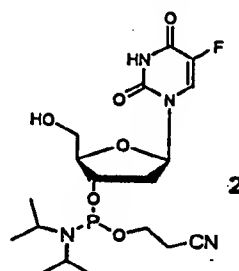


FIGURE 9

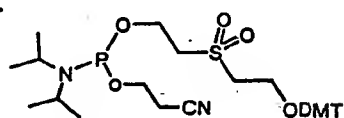


1) a.



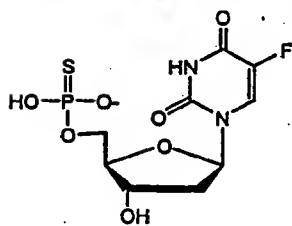
b. Cap A/Cap B  
 c. Beaucage Reagent  
 d.  $\text{Cl}_2\text{CHCOOH}$

2) a.



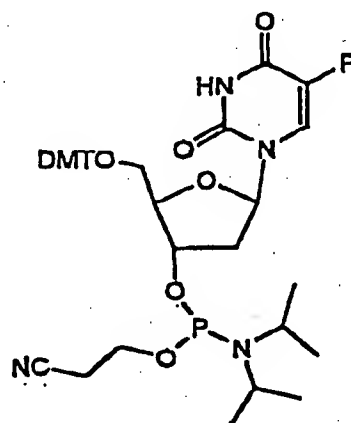
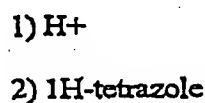
b. Cap A/Cap B  
 c. Beaucage Reagent  
 d.  $\text{Cl}_2\text{CHCOOH}$

3)  $\text{Cl}_2\text{CHCOOH}$   
 4) 0.5 M NaOH in 50%  $\text{CH}_3\text{OH}/\text{H}_2\text{O}$ , 1.5 h

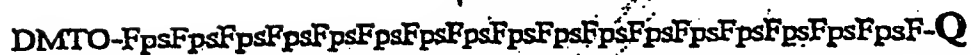


8

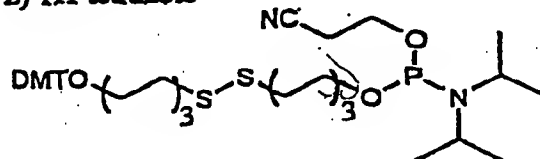


[illegible]

- 3) Oxidation - Beaucage Reagent
- 4) Capping - Acetic anhydride, 2,6-Lutidine  
Tetrahydrofuran
- 5) Repeat



- 1)  $H^+$
- 2) 1H-tetrazole



- 3) Oxidation - Beaucage Reagent  
4) Capping - Acetic anhydride, 2,6-Lutidine  
Tetrahydrofuran

- 5) H<sup>+</sup>  
6) 0.1 M NaOH in 50% CH<sub>3</sub>OH/H<sub>2</sub>O, 1h, 25°C  
7) C<sub>18</sub> SepPak (Waters Corp.)

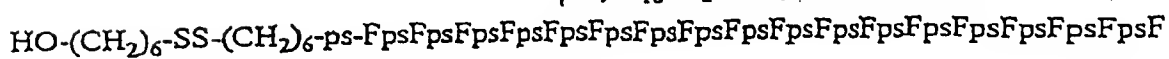
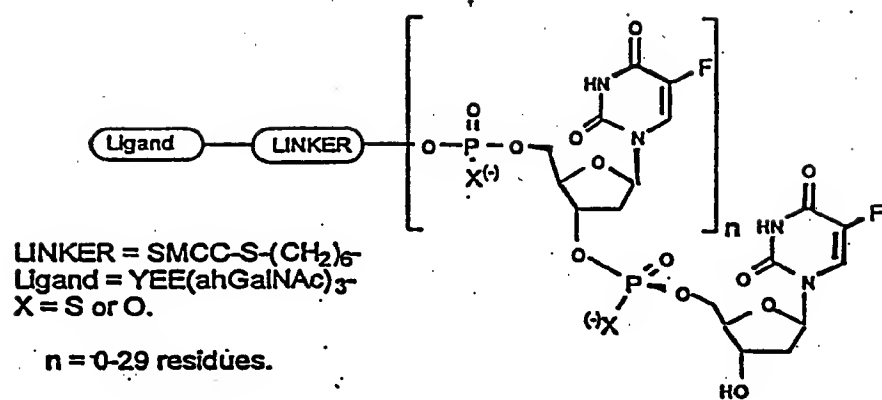


FIGURE 12



**101-10698**

